

Purchasing Receipts

Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200
Fax 613 632-5246

Plex 8/14/2018 11:12 AM *dart, Tollis, Andrew*

200 Aurora Industrial Pkwy
Aurora OH 44202-8087
330-995-5500
cle.sales@mcmaster.com

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury ON K6A 1K7
Canada

Purchase Order
PO040531
Order Placed By
Chantal Lavoie

Page 1 of 2
08/08/2018

McMaster-Carr Number
6559637-05

Line	Product	Ordered	Shipped
11	2572T77 Ultra-Machinable 360 Brass Rod with Certification, 2-1/2" Diameter, 6 Feet Long	1 Each	1

Shipped separately from our Cleveland warehouse on 07/20

1	54175A74 6-Point Standard Impact Socket, 3/4" Square Drive, 50mm Size	3 Each	2
2	7856K75 Heat-Shrink Tubing, 25 Feet Long, 0.25" ID Before Shrinking, Black	2 Each	2
3	91610A209 18-8 Stainless Steel Slotted Spring Pin, 2mm Diameter, 18mm Long	2 Packs	2
4	91292A142 18-8 Stainless Steel Socket Head Screw, M6 x 1 mm Thread, 40 mm Long	2 Packs	2
5	91698A306 Black-Oxide 18-8 Stainless Steel Phillips Flat Head Screws, M3 x 0.5 mm Thread, 10 mm Long	1 Pack	1
6	91292A138 18-8 Stainless Steel Socket Head Screw, M6 x 1 mm Thread, 25 mm Long	1 Pack	1
7	8993K72 304 Stainless Steel 90 Degree Angle, 1/4" Wall Thickness, 3" x 3" Outside, 6 Feet Long	1 Each	1
8	93625A200 18-8 Stainless Steel Nylon-Insert Locknut, M5 x 0.8 mm Thread	1 Pack	1
9	90128A268 Zinc-Plated Alloy Steel Socket Head Screw, M6 x 1 mm Thread, 40 mm Long	1 Pack	1
10	91654A106 18-8 Stainless Steel Screw Nails for Metal, Plastic & Plywood, Size 4, 1/4" Long	1 Pack	1
12	8575K254 Black Delrin® Acetal Resin Sheet, 5/64" Thick, 24" Wide x 24" Length	1 Each	1
13	91287A461 18-8 Stainless Steel Hex Head Screw, M8 x 1.25 mm Thread, 120 mm Long, Fully Threaded	2 Packs	2

Packing List

200 Aurora Industrial Pkwy
Aurora OH 44202-8087
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Page 2 of 2
08/08/2018

Line	Description	Ordered	Shipped
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Shipped separately from our Chicago warehouse on 07/20

1	54175A74 6-Point Standard Impact Socket, 3/4" Square Drive, 50mm Size	3 Each	1
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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO040531

Supplier:	MCM001-VU McMaster-Carr Supply Co, P.O. Box 7690 Chicago, IL 60680-7690 USA Phone: 330 995 5500 Fax: 330 995 9600	PO No:	PO040531
		PO Date:	7/18/18
		Due Date:	8/17/18
		Purchase Order Revision:	
		Revision Date:	
		Ship-To Contact:	Lavoie, Chantal Phone: clavoie@dartaero.com
Ship To:	1270 Aberdeen Street Hawkesbury ON K6A 1K7 Canada Phone: 613-632-5200	Via:	Ground
		Pymt Terms:	2% 10 Net 30
		Freight Terms:	
		Special Comments:	

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
11 <i>AK</i>	MT- BRASS- C360- R2.500	2572T77 6FT		Brass C360 Round Bar 2.500"	Firmed -		8/17/18	6 ft	0 ft <i>✓ 6ft</i>	6 ft	\$117.94166/ft	\$707.65 <i>8/18/18/14</i>
											Grand Total:	\$707.65

Order Notes

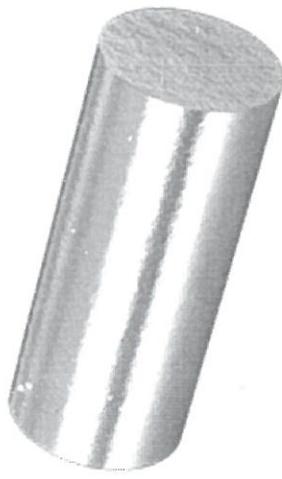
Procurement Quality Clauses
 A005 RIGHT OF ENTRY
 A016 PERSONNEL QUALIFICATION
 A026 CERTIFICATION OF MATERIAL CONFORMANCE
 A032 DOCUMENT SPECIAL REQUIREMENTS
 A033 STATEMENT OF CONFORMITY/TEST RECORDS FOR NAS, AN and MS FASTENERS
 A040 NOTIFICATION OF QUALITY ESCAPE
 A041 QUALITY MANAGEMENT SYSTEM
 A042 DART NOTIFICATION BY SUPPLIER
 A043 RETENTION OF QUALITY DOCUMENTS
 A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM
 A049 SUPPLIER AWARENESS

CL

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 8/14/18 10:32 AM dart.lavoie.chantal

Ultra-Machinable 360 Brass Rod
with Certification, 2-1/2" Diameter



2572T77

Material	360 Brass
Cross Section Shape	Round
Construction	Solid
Appearance	Plain
Diameter	2 1/2"
Diameter Tolerance Range	-0.006" to 0.006"
Tolerance Rating	Standard
Yield Strength	15,000 psi
Fabrication	Cold Worked
Temper	H02
Temper Rating	1/2 Hard
Hardness	Rockwell B25
Hardness Rating	Soft
Certification	Material Certificate with Traceable Lot Number and Test Report
Heat Treatable	No
Specifications Met	ASTM B16
Density	0.307 lbs/cu. in.
Surface Resistivity	39.9 Ohms
Melting Point Temperature	1630° F
Modulus of Elasticity	$14.0 \text{ ksi} \times 10^3$

Thermal Conductivity	67 Btu/hr.-ft. ^{-o} F @ 68° F
Elongation	25%
Material Composition	
Copper	60-63%
Iron	0-0.35%
Lead	2.5-3.7%
Silicon	0-0.17%
Zinc	32.95-37.15%
Length Tolerance Range	-0.5" to 0.5"
Length	1/2 ft., 1 ft., 2 ft., 3 ft., 6 ft.
RoHS	Not Compliant

These rods come with a traceable lot number and test report. With the highest lead content of all the brass alloys, 360 offers the best machinability. Often called free-machining and free-cutting brass, it stands up to high-speed drilling, milling, and tapping operations with minimal wear on your tools. It's commonly used for gears, pinions, and lock components.



Non-Ferrous Metal Works (SA) (Pty) Ltd

EXTRUSION DIVISION

1 The Avenue East, Prospecton, Kwa-Zulu Natal, South Africa Reg. No.: 1951/000559/07
Telephone: +27 (31) 902 7470 Fax: +25 (31) 902 8865

TEST CERTIFICATE

Customer AVIVA METALS, INC. PO BOX 800818 HOUSTON TEXAS 77280 United States	Test Certificate Number Works Order Number Sales Order Number Delivery Note No Invoice Number Purchase Order No. Alloy Quantity Ordered Weight Despatched	COC022691 WO0021809 SO00559573 SO-DN00009007 SO-IN00309504 HOU-13191-KZ 360 8900 Lbs 4334.244 Lbs
Description 2-1/2" DIA X 12 FT ROUND BAR Free Cutting Brass HALF HARD	Specifications ASTM B16 C36000 (10-2015) ASTM B249 (17)	

Mechanical/Physical Test Results

Size 1 mm	Size 2 mm	Area mm ²	Yield Strength		Tensile Strength		Elongation %	Hardness		
			Kg/mm ²	PSI	Kg/mm ²	PSI		Vickers	Brinell	Rockwell
20.00	0.00	314.20	28.48	40,492.80	37.87	53,855.43	33.00	0.00	0.00	61.70
19.99	0.00	313.89	28.73	40,857.23	38.07	54,135.83	32.50	0.00	0.00	61.70

Chemical Composition

Charge Number	Cu	Zn	Fe	Mn	Al	Ni	Sn	Pb	Si	As	P	Te
E1501	61.220	35.191	0.280	0.000	0.000	0.100	0.300	2.890	0.000	0.000	0.000	0.000

Charge Number	Sb	Mg	Ti	Co	Cd	Sr	Cr	Ca	Other
E1501	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000

APPROVED

3:36 pm, May 17, 2018
ANITA MCGRAY, MTR Administrator



Remarks MATERIAL HAS PASSED THE MERCUROUS NITRATE CRACK TEST IN ACCORDANCE WITH ASTM B-154 SPECS [12] WHERE APPLICABLE	We certify that the material is free from mercury contamination Signed for on behalf Non-Ferrous Metal Works(SA) (PTY) Ltd Quality Manager 2018/04/24 Date
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QUALITY
CONTROLLED
COPY

Metallurgist

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL:

SPECIFICATION:

PART NUMBER:

C360 BRASS
ASTM B16

MT-BRASS-C360-R-[D,DDD]

WHERE D,DDD IS DIAMETER IN INCHES

MT-BRASS-C360-R-0.250

TOLERANCES PER MANUFACTURER SPECIFICATIONS

EXAMPLE:

1	2	3	4	5	6	7	8
REV.		DESCRIPTION		ECN #		DATE	
A		NEW ISSUE		17-732		17-1122	

D

C

B

A

DART AEROSPACE		Head Office, Ontario, Canada
MT-BRASS C360 ROUND BAR		
ITEM NO	MT-BRASS C360-R	REV
DESIGN BY:	VM 11/11/2017	200X 2 203
DRAWN BY:	VM 11/01/2017	FRACTIONS 1/16
CHECKED:	X	1/32
SAC:	VM 11/05/2017	1. DIMENSIONS ARE IN INCHES
MTS APPROV:	DR 11/19/2017	UNLESS OTHERWISE SPECIFIED
APPROVED:	VM 11/21/2017	ASME Y14.5M-2009
DATE:	VM 11/21/2017	3. DIMENSIONAL LIMITS APPLY
SCALE:	MTS	WEIGHT: 14.16 LB
		INCHES
COPRIGHT © 2017 BY DART AEROSPACE LTD. DRAFT NOT FOR FABRICATION. THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD. DUPLICATE COPIES ARE NOT TO BE MADE. DART AEROSPACE LTD. IS A REGISTERED TRADE NAME OF DART AEROSPACE LTD.		

2

4

5

7

B

A

B

C

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-BRASS-C 360-R 2.500
 DATE: 18/08/14

PO / BATCH NO.: P0040531/5/02066

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 604
 QUANTITY INSPECTED: 604
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 2.500"
 THICKNESS RECEIVED: 2.500"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
	Y	N	
SURFACE DAMAGE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORROSION	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>ASTM B6</u>
CORRECT THICKNESS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
PHOTO REQUIRED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>P0040531</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	WEBSTER

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AJ</u>	SIGNED OFF BY: _____
DATE: <u>18/08/14</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in